Amendments to the Claims

Please cancel claims 1–12 and add claims 13–26 as shown in the below listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims

Please amend the claims as follows:

1-12. (canceled)

13. (new) A method of displaying a high-density bit-mapped image on a low-density dot-matrix large display device, each of a plurality of light emitting elements corresponding to each dot of said dot-matrix display device, said plurality of light emitting elements being arranged at respective intersections in a dot-matrix defined by removing parts of rows and columns of said bit-mapped image, said bit-mapped image including image data dots to be displayed at and between said light emitting elements of said dot-matrix display device, said method comprising:

allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

selecting repetitively respective dots of said image data dot by dot at high speed from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule; and

supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.

14. (new) A method of displaying a high-density bit-mapped image on a low-density dot-matrix display device claimed in claim 13, wherein a probability of selecting

each dot of said image data of one group under said selection order rule is constant.

15. (new) A method of displaying a high-density bit-mapped image on a low-density dot-matrix display device claimed in claim 13, wherein a probability of selecting each dot of said image data of one group under said selection order rule is not constant and a probability of selecting a particular dot or dots of said image data is higher than those for the other dots.

16. (new) A method of displaying a high-density bit-mapped image on a low-density dot-matrix large display device, each of a plurality of light emitting elements corresponding to each dot of said dot-matrix display device, said plurality of light emitting elements being arranged at respective intersections in a dot-matrix defined by removing parts of rows and columns of said bit-mapped image, said bit-mapped image including image data dots to be displayed at and between said light emitting elements of said dot-matrix display device, said method comprising:

allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

repeating at high speed a first process of selecting one dot of said image data from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule and a second process of generating one dot of image data by averaging a plurality of dots of said image data in said group selected from among a plurality of dots in said group under a predetermined selection order rule; and

supplying one dot of said image data selected by said first process and one dot of said image data generated by said second process to said corresponding light emitting element to drive said light emitting element.

17. (new) A system for displaying a high-density bit-mapped image on a low-density dot-matrix large display device, each of a plurality of light emitting elements corresponding to each dot of said dot-matrix display device, said plurality of light emitting elements being arranged at respective intersections in a dot-matrix defined by removing parts of rows and columns of said bit-mapped image, said bit-mapped image including image data dots to be displayed at and between said light emitting elements of said dot-matrix display device, said system comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit selecting repetitively respective dots of said image data dot by dot at high speed from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule; and

a unit supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.

18. (new) A system for displaying a high-density bit-mapped image on a low-density dot-matrix display device claimed in claim 17, wherein a probability of selecting each dot of said image data of one group under said selection order rule is constant.

19. (new) A system for displaying a high-density bit-mapped image on a low-density dot-matrix display device claimed in claim 17, wherein a probability of selecting each dot of said image data of one group under said selection order rule is not constant and a probability of selecting a particular dot or dots of said image data is higher than those for the other dots.

20. (new) A system for displaying a high-density bit-mapped image on a low-density dot-matrix large display device, each of a plurality of light emitting elements corresponding to each dot of said dot-matrix display device, said plurality of light emitting elements arranged at respective intersections in a dot-matrix defined by removing parts of rows and columns of said bit-mapped image, said bit-mapped image including image data dots to be displayed at and between said light emitting elements of said dot-matrix display device, said system comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit repeating at high speed a first process of selecting one dot of said image data from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule and a second process of generating one dot of image data by averaging a plurality of dots of said image data in said group selected from among a plurality of dots in said group under a predetermined selection order rule; and

a unit supplying one dot of said image data selected by said first process and one dot of said image data generated by said second process to said corresponding light emitting element to drive said light emitting element.

21. (new) A display system for displaying high-density dot-matrix bit-mapped image data on a low-density dot-matrix large display device, said display device comprising:

a lattice structure having a plurality of cross members intersecting with each other, a dot-matrix of said lattice structure defined by removing parts of rows and columns of said bit-mapped image;

a plurality of light emitting elements disposed at said intersections respectively, each said light emitting element being shaped so as not to deteriorate transparency of said lattice structure, each said light emitting element being so disposed that an optical axis thereof is oriented perpendicular to a surface of the lattice structure, said bit-mapped image data dots to be displayed being arranged at and between said adjacent light emitting elements;

a controller controlling drive of said light emitting elements respectively, said controller being distributed in said cross members; and

a main control device controlling said controller, comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit selecting repetitively respective dots of said image data dot by dot at high speed from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule; and

a unit supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.

22. (new) A display system for displaying high-density dot-matrix bit-mapped image data on a low-density dot-matrix large display device claimed in claim 21, wherein a probability of selecting each dot of said image data of one group under said selection order rule is constant.

23. (new) A display system for displaying high-density dot-matrix bit-mapped image data on a low-density dot-matrix large display device, claimed in claim 21, wherein a probability of selecting each dot of said image data of one group under said

selection order rule is not constant and a probability of selecting a particular dot or dots of said image data is higher than those for the other dots.

24. (new) A display system for displaying high-density dot-matrix bit-mapped image data on a low-density dot-matrix large display device, said display device comprising:

a lattice structure having a plurality of cross members intersecting with each other, a dot-matrix of said lattice structure defined by removing parts of rows and columns of said bit-mapped image;

a plurality of light emitting elements disposed at said intersections respectively, each said light emitting element being shaped so as not to deteriorate transparency of said lattice structure, each said light emitting element being so disposed that an optical axis thereof is oriented perpendicular to a surface of the lattice structure, said bit-mapped image data dots to be displayed being arranged at and between said adjacent light emitting elements;

a controller controlling drive of said light emitting elements respectively, said controller being distributed in said cross members; and

a main control device controlling said controller, comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit repeating at high speed a first process of selecting one dot of said image data from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule and a second process of generating one dot of image data by averaging a plurality of dots of said image data in said group selected from among a plurality of dots in said group under a predetermined selection order rule; and

a unit supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.

25. (new) A display module for configuring a large-scale dot-matrix display device for displaying a high-density bit-mapped image, comprising:

a plurality of cross members intersecting with each other, a dot-matrix of said cross members defined by removing parts of rows and columns of said bit-mapped image;

a plurality of light emitting elements disposed at said intersecting points of the cross members respectively, each said light emitting element being shaped so as not to deteriorate transparency of a structure configured by said intersecting cross members, each said light emitting element being so disposed that an optical axis thereof is oriented perpendicular to a surface of the structure formed by the intersecting cross members, said bit-mapped image data dots to be displayed being arranged at and between said adjacent light emitting elements;

a control circuit driving said light emitting elements respectively, said control circuit being distributed in said cross members,

a main control device controlling said control circuit, comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit selecting repetitively respective dots of said image data dot by dot at high speed from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule; and

a unit supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.

26. (new) A display module for configuring a large-scale dot-matrix display device for displaying a high-density bit-mapped image, comprising:

a lattice structure having a plurality of cross members intersecting with each other, a dot-matrix of said lattice structure defined by removing parts of rows and columns of said bit-mapped image, each said cross member including a mating portion at least at one extremity thereof for mating with other display module adjacent thereto;

a plurality of light emitting elements disposed at said intersecting points of the cross members respectively, each said light emitting element being shaped so as not to deteriorate transparency of a structure configured by said intersecting cross members, each said light emitting element being so disposed that an optical axis thereof is oriented perpendicular to a surface of the structure formed by the intersecting cross members, said bit-mapped image data dots to be displayed being arranged at and between said adjacent light emitting elements;

a control circuit driving said light emitting elements respectively, said control circuit being distributed in said cross members,

a main control device controlling said control circuit, comprising:

a unit allocating a plurality of dots of said image data to be displayed at said light emitting element and between said light emitting elements to each light emitting element as one group;

a unit selecting repetitively respective dots of said image data dot by dot at high speed from among a plurality of dots constituting a group of said image data according to a predetermined selection order rule; and

a unit supplying said selected dot of said image data to said corresponding light emitting element to drive said light emitting element.